



Does the Intensity of Gadget Use Impact Social and Emotional Development of Children aged 48-72 Months?

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Abstract

Purpose – This study aims to analyze the correlation between the intensity of gadget use and the social-emotional development of children aged 48-72 months.

Design/methods/approach – The Study uses quantitative research with a cross-sectional study. The sample includes 126 children using a simple random sampling technique at Al-Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya, Indonesia. The independent variable is the intensity of gadget use which is measured using a questionnaire. The dependent variable is the children's social-emotional development as measured by the Questionnaire of Problems and Emotional Behavior.

Findings – There is a significant correlation between the intensity of gadget usage and the social-emotional development of children aged 48-72 months ($p\text{-value} < 0.05$). High-intensity gadget use will increase their social-emotional development in the referral category, which means it requires treatment by the experts.

Research implications/limitations - The result of this study supports the theory that high intensity of gadget usage on children will affect their social and emotional development. This study only focuses on children's social and emotional development without examining another developmental variable that may affect the study results.

Practical implications – Parents are expected to play a role in supervising and limiting the use of gadgets on children to avoid the negative impacts.

Originality/value – This study contributes to the literature by showing the effect of gadget use on children's social and emotional development.

Keywords Gadgets, Social-emotional development, Preschool

Paper type Research paper

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1. Introduction

Early childhood has unique characteristics because they are a speedy and essential process of growth and development for the following stages of life (Clancy Blair, Philip D. Zelazo, 2016; Dahl et al., 2018). One aspect of child development is social-emotional development. Social development is the ability to behave according to social demands to become someone who can socialize (Agusniatih & Nirmala, 2020; Hurlock, 2012; Mayasari & Asniwati, 2018), while emotional development can be interpreted as a process related to children's feelings (Canzi et al., 2018; Hapsari, 2016; Winnicott, 2018). The socio-emotional development of early childhood is crucial to pay attention to because, at that age, children begin to socialize in groups, form characters, and begin to follow the rules that apply in the environment (Berry et al., 2016; Goldschmidt & Pedro, 2019; Zakaria et al., 2021). However, in the current era of the COVID-19 pandemic, early childhood becomes difficult to socialize with the environment directly (Atilas et al., 2021). Even the teaching and learning process, which was initially face-to-face, had to switch to online methods so that the use of gadgets by early childhood could not be avoided. According to the results of the Indonesian Children Protection Commission/Komisi Perlindungan Anak Indonesia (KPAI) survey (2020), as many as 71.3% of children in Indonesia even have their gadgets, and as many as 79% of parents admit to allowing their children to use gadgets outside the teaching and learning process because children can seek additional knowledge and information.

The use of gadgets has a positive and negative impact on children (Akram & Kumar, 2017; Siddiqui & Singh, 2016). One of the positive impacts of using gadgets is that it can improve the cognitive function of the brain (Kardefelt-Winther, 2017), while some of the negative impacts are that it can increase the symptoms of Attention-deficit Hyperactivity Disorder (ADHD) (Bashiri et al., 2017), interfere with emotional and social intelligence, can cause addictive behavior (Turel et al., 2011), increase social isolation (Nalwa & Anand, 2003), and interfere with brain development and children's sleep patterns (Small et al., 2020). If the child is already affected by the negative impact of gadgets at an early age, then the child's development will be hampered and will significantly affect further development (Enny Fitriahadi & Hanna Tyastiti, 2020). Based on Sapardi's (2018) study, it was found that children with deviant development mostly use gadgets with excessive time, which is more than 30 minutes per week. The same thing was also stated in a study conducted in China that preschool children who use gadgets for more than 60 minutes per day tend to have more behavioral problems (Xie et al., 2020). The use of gadgets for more than 1 hour per day causes children to tend not to care about the surrounding environment and are lazy to move to impact children's physical and psychological health (Putri et al., 2020). A literature study conducted by Setiani (2020) found that the use of gadgets negatively influences the social development of early childhood within 3-5 years old. A study by Setiawati et al. (2019) found that gadgets negatively influence the social development of early childhood within 3-5 years old, there is a significant relationship between the duration of gadget use and the social-emotional development of children in PGRI 2 Rangkasbitung Kindergarten. The same result was also conveyed in a previous study conducted in the South Lampung Regency, which showed a relationship between the use of gadgets and preschool children's social and emotional development with a p-value of $0.001 < 0.05$ (Imron, 2017). Likewise, the results of Gunawan's (2017) study conducted at PGRI 33 Sumorboto Kindergarten, Banyumanik, found a relationship between the duration of gadget use and the level of social development of preschool children with a p-value of 0.000. Different results were obtained in a study conducted at the Islamic Kindergarten Al Irsyad 01, Cilacap, that there was no relationship between the length and frequency of using gadgets with the social development of preschool children (Sujianti, 2018). Therefore, there are still differences of opinion on the results in previous studies.

According to the results of the KPAI survey (2020), parents tend not to assist when children use their gadgets, even though children have not been able to control themselves at an early age. It can increase the negative impact of using gadgets on children. The same thing was also stated by Ebi (2017) that parents are responsible for supervising and assisting children in using gadgets and ensuring that the information accessed by children is information that is appropriate for their

age. Based on previous studies, phenomena, and facts in society, researchers are interested in analyzing the relationship between the intensity of gadget use and the social and emotional development of children aged 48-72 months at Al-Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya.

2. Methods

2.1. Setting and design

It is an observational analytic study with a cross-sectional design. The study population was all children aged 48-72 months who attended Al-Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya, totaling 160 populations. The research sample was all children who attended Al-Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya, who had met the inclusion and exclusion criteria totaling 126 respondents—using a simple random sampling technique. The independent variable is the intensity (duration and frequency) of gadget use. The dependent variable is the child's social-emotional development. A questionnaire measures the intensity of gadget use, and children's social and emotional development is measured by the Emotional Behavior Problem Questionnaire from the Indonesian Ministry of Health guidelines. Data collection was carried out in March 2020.

2.2. Participants and informed consent

Before collecting the data, the researchers met with the Principal of the Al Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya to ask permission and student data in these two kindergartens. After that, the researchers asked for help from the Principal of Al Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya to help researchers invite parents of students who had met the inclusion criteria to become research subjects. Furthermore, the researchers met directly with the parents of students who had met the inclusion and exclusion criteria to seek approval. After the students' parents gave their consent, the researchers gave a questionnaire, and the parents immediately filled out the questionnaire according to the circumstances and conditions of each child.

2.3. Data and data analysis

Research data were obtained by the researchers with the help of a questionnaire. The researchers collected, checked the completeness of the answers and the continuity between the questions and the answers from the questionnaires that the parents of the research subjects had filled out. After that, the researchers coded the data to simplify the process of data analysis. The research data are included in the frequency distribution table. Data analysis is in the form of univariate and bivariate analysis. The bivariate analysis uses the non-parametric statistical test Spearman's test. The Coefficient Contingency is used to determine the close relationship between two variables. The researchers use SPSS for Windows to facilitate data analysis.

3. Result

3.1. Intensity of Gadget Use

The intensity of gadget use consists of the duration (length) and frequency (how often) of gadget use and is then divided into three categories, i.e., low, medium, and high. Based on table 1, almost half of the respondents have a moderate intensity of gadget use, with 56 respondents (44.4%). There is a maximum duration of use of 360 minutes/day and a maximum frequency every day.

3.2. Children's Social and Emotional Development

Children's social and emotional development is divided into three categories based on the Emotional Behavior Problem Questionnaire, i.e., the normal category needs counseling and referral (referral to the hospital for expert treatment).

Table 1. The intensity of Gadget Use in Children aged 48-72 months

Category	Frequency	Percentage
Low	24	19.0
Medium	56	44.4
High	46	36.5
Sum	126	100.0
Duration	Median	60/minute/day
	Minimum	0 minute/day
	Maximum	360 minute/day
Frequency	Median	Four day/week
	Minimum	0 day/week
	Maximum	every day

Table 2. Children's Social and Emotional Development aged 48-72 months

Category	Frequency	Percentage
Normal	72	57.1
Need Counseling	19	15.1
Referral to Hospital	35	27.8
Sum	126	100.0

Based on table 2, most of the respondents have a standard category of social-emotional development, with 72 respondents (57.1%).

3.3. The Relationship of Intensity of Gadget Use with Children's Social and Emotional Development

Table 3. Spearman Test for the Relationship between Intensity of Gadget Use with Social and Emotional Development of Children aged 48-72 months

Intensity Gadget Use	Children's Social and Emotional Development								P-value	CC
	Normal		Need Counseling		Referral to Hospital		Sum			
	F	%	F	%	F	%	F	%		
Low	21	87.5	2	8.3	1	4.2	24	19.0	0.000	0.678
Medium	45	80.4	9	16.1	2	3.6	56	44.4		
High	6	13.0	8	17.4	32	69.6	46	36.5		
Sum	72	57.1	19	15.1	35	27.8	126	100.0		

Based on table 3, almost all respondents with low intensity of gadget use have a normal social-emotional development category with 21 respondents (87.5%). Respondents with moderate intensity of gadget use have normal social, emotional development category with 45 respondents (80.4%). Meanwhile, respondents with high intensity of gadget use mostly have social-emotional development category referrals to hospitals with 32 respondents (69.6%). Statistical test results obtained a p-value of (0.000) < 0.05 with a correlation coefficient of 0.678. Thus, there is a significant relationship between the intensity of gadget use and the social and emotional development of children aged 48-72 months at Al-Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya. High use of gadgets will increase children's socio-emotional development, requiring referral or treatment to hospitals with child development service facilities.

4. Discussion

The results of the Spearman test showed a strong relationship between the intensity of gadget use and the social and emotional development of children aged 48-72 months at Al-Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya. The results of this study are in line with previous studies, which showed that there was an effect of using gadgets on the psychosocial development of preschoolers in Immanuel Christian Kindergarten with a p-value of 0.005 < 0.05

(Trinika, 2015). The same thing was also described in a study conducted in South Lampung Regency, showing a relationship between gadgets and preschool children's social and emotional development with a p-value of $0.001 < 0.05$ (Imron, 2017). The results of a study conducted at PGRI 1 Rangkasbitung Kindergarten also stated the same thing. There was a relationship between the duration of gadget use and social-emotional development with a p-value of $0.011 < 0.05$ (Setiawati et al., 2019).

Children's Excessive use of gadgets will eliminate children's interest in other activities, thus making children prefer to be alone than playing with friends and even their parents. When children are addicted to gadgets, they will assume that gadgets are part of their lives and do not want to be separated. It can affect the social development of children with their environment (Iswidharmanjaya, 2014). Society shows that children who use gadgets too often will have an aggressive attitude and can less control their emotions when they feel disturbed (Suhana, 2018). It is related to the function of the Pre-Frontal Cortex (PFC) in the brain. The PFC is the part of the brain that has a function to regulate emotions, self-control, responsibility, and other moral values. In excessive use of gadgets, PFC will produce excessive dopamine hormone and interfere with the PFC function (Suhana, 2018).

This study indicates that although most children with high intensity of gadget use have social and emotional development in the referral category or categories that require treatment at the hospital, 13% of children with high-intensity gadget use have specific social and emotional development categories. It can happen because aspects of development in children influence each other. Aspects of a child's social and emotional development can be influenced by the child's motor, cognitive, and language development (Latifa, 2017). As described in a previous study, children's speech and language delay disorders can affect the child's social and emotional development. Speech and language disorders in children can make it difficult for children to communicate with the surrounding environment so that children will avoid interaction with the environment. It will interfere with the child's social and emotional development (Nilawati & Suryana, 2018). In this study, it is possible that children with high gadget use intensity who have specific social and emotional development categories can be influenced by other aspects. Unfortunately, in this study, other developmental aspects of each respondent were not examined beforehand, so that the researchers could not know whether there were respondents with other developmental aspects being disturbed or not.

Parents play a vital role in supervising children to reduce the intensity of gadget use and its impact on children. The results of the study indicate that parents who rarely and never supervise or interact with children when their children use gadgets tend to have moderate to high intensity of gadget use. It affects children's socio-emotional development, which also increases needing counseling and referrals to hospitals with child development service facilities. It is in line with the results of previous research that there is a significant relationship between parental supervision and the impact of using gadgets on children (Sunita & Mayasari, 2018). In addition, parents must be able to set time limits and applications that children can access. The time limit must be done consistently and firmly so that children get used to doing it every day. Avoid giving gadgets to calm a child with a tantrum because it will make it more tantrum if the gadget is not given (Irmayanti, 2018). Excessive use of gadgets has consequences on children's daily lives' emotional, psychological, and social aspects. Thus, parents are advised to accompany their children when they use gadgets (Wu et al., 2014). During the COVID-19 pandemic, children's use of gadgets increased due to the online learning process. During this pandemic, the increase in digital literacy can affect the risk of children's bad habits in cyberspace, especially in children with weak self-control (Purnama et al., 2021).

Whereas in early childhood, their self-control in using gadgets is still low, so the role of parents is very much needed in accompanying children while using gadgets. In addition, parents must be able to set time limits and applications that children can access. The selection of educative and age-appropriate applications can increase the positive impact more than the negative impact of using gadgets. The role of educators is also needed to understand parents about the importance

of controlling and supervising their children in the use of gadgets. Educators can use exciting and easy-to-understand media such as leaflets, videos, or slides (Imron, 2017). In addition, health workers, especially midwives, also reduce the impact of gadgets on children's social, emotional development. Midwives can work with educators to educate parents, including the impact of using gadgets for children, recommendations for good use of gadgets for children, and stimulation and early detection of children's social-emotional development. Midwives can provide stimulation services and early detection of children's social-emotional development so that children's social-emotional development can be identified and intervened as early as possible if there are disturbances.

5. Conclusion

This study concludes a strong correlation between the intensity of gadget use and the social and emotional development of children aged 48-72 months at Al-Furqon Kindergarten and Bunda Ghifari Kindergarten Surabaya. Parents should supervise and set limits regarding the intensity (frequency and duration) of their child's use of gadgets and applications that their child can access. The interaction between parents and children is also significant so that the interaction between parents and children remains well established. Educators and midwives are expected to educate children on the impact of using gadgets and the importance of social-emotional development to the community, especially parents. In addition, midwives are expected to improve the early detection of children's social and emotional development to detect children's social-emotional development as early as possible. Future researchers are expected to examine more deeply the social-emotional development of children by multiplying samples, researching in other areas, or using other variables that are thought to affect children's social and emotional development.

Declarations

Author contribution statement

Nabila Ilma Nisa Rukmana conceived the presented idea. Nur Ainy Fardana, Linda Dewanti, and Farah Mujtaba developed the theory of social-emotional development in early childhood education. All authors discussed the results and contributed to the final manuscript.

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Data availability statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.


Declaration of interests statement

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.


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